

Application Number 09/536,366
Amendment Responsive to Office Action mailed February 23, 2005

REMARKS

This Amendment is responsive to the Office Action dated February 23, 2005. Applicant has amended claims 25, 33, 38, 41, 44, 47, 51, 54, 56 and 58. Claims 25-59 are pending.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 25-29, 31-33 and 35-59 under 35 U.S.C. 103(a) as being unpatentable over Swen et al. (USPN 5,806,081) in view of Higgins et al. (USPN 5,835,627). In addition, the Examiner rejected claim 30 under 35 U.S.C. 103(a) as being unpatentable over Swen et al. in view of Higgins et al. and further in view of Ohta (USPN 6,108,008), and rejected claim 34 under 35 U.S.C. 103(a) as being unpatentable over Swen et al. in view of Higgins et al. and further in view of Holm (USPN 6,249,315).

Applicant respectfully traverses the rejections, particularly to the extent such rejections may be considered applicable to the claims as amended. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Claims 25-46 require interpretation of a source device profile to convert coordinates in a source device color space to a device-independent color space, interpretation of a destination device profile to convert coordinates in a destination device color space to the device-independent color space, and generation of a color map defining a relationship between the source and destination device color spaces based on the converted coordinates and user preferences specified by a user independently of the source and destination device profiles. Also, claims 25-46 now more clearly specify that the user preferences include color conversion preferences.

Claims 47-53 require interpretation of a source device profile to convert coordinates in a source device color space to a device-independent color space, interpretation of a destination device profile to convert coordinates in a destination device color space to the device-independent color space, and generation of a color map that defines a relationship between the source and destination device color spaces based on the converted coordinates and user preferences specified by a user independently of the source and destination device profiles. Claims 47-53 further require generation of a color map in part by reducing color error between

Application Number 09/536,366

Amendment Responsive to Office Action mailed February 23, 2005

the converted coordinates, using forward transformation profiles to produce the converted coordinates, and adjustment of coordinates in the destination device color space to reduce the color error, the color map being based in part on the adjusted coordinates in the destination device color space. In addition, claims 47-53 specify that the user preferences include color conversion preferences.

Claims 54-59 recite interpretation of a source device profile to convert coordinates in a source device color space to a device-independent color space, interpretation of a destination device profile to convert coordinates in a destination device color space to the device-independent color space, and generation of a color map that defines a relationship between the source and destination device color spaces based on the converted coordinates and user preferences specified by a user independently of the source and destination device profiles. The source and destination device profiles are not modified based on the user preferences. Notably, the user preferences include color conversion preferences.

In his analysis, the Examiner stated that Swen et al. teaches source and destination profile interpreters that convert coordinates in source and destination device color spaces, respectively, to a device-independent color space, and a color transformer that generates a color map based on the converted coordinates. The Examiner recognized that Swen et al. does not specifically disclose a color transformer that generates a color map based on the converted coordinates and user preferences specified by a user independently of the source and destination device profiles. However, the Examiner asserted that such a limitation is shown in Higgins et al.

Higgins et al. fails to disclose or suggest a color transformer that generates a color map based on converted coordinates and user preferences specified by a user independently of source and destination device profiles, wherein the user preferences include color conversion preferences, as required by Applicant's amended claims 25-59. More specifically, Higgins et al. does not describe the use of such user preferences to convert coordinates to the device-independent color space nor the use of such user preferences to generate a color map. The user preferences disclosed in Higgins et al. do not relate to color conversion.

As the specification of Higgins et al. states, "[t]he user selection information, also referred to as image processing operation selection information, is selected by an operator who can select: a tradeoff between processing time and image quality; the size of the image to be

Application Number 09/536,366
Amendment Responsive to Office Action mailed February 23, 2005

rendered; and specific source and destination devices for use with the system," Col. 4, ll. 6-12. Hence, the user preferences described by Higgins et al. relate to the amount of processing time devoted to the processing of an image. With greater processing time, image quality is increased. With lesser processing time, image quality is decreased.

Higgins et al. describes user selection information that defines an image processing sequence and a customer satisfaction index (CSI) that represents a tradeoff between image quality and processing time. More specifically, Higgins et al. describes generating image processing parameter data from source and destination device profiles and default trial parameters only when the CSI is optimized. When the CSI is not optimal, new trial parameters are automatically generated for use with the source and destination device profiles to generate image processing parameter data, Col. 35, ln. 67-Col. 36, ln. 12.

Higgins et al. does not suggest receiving user preferences that include color conversion preferences for conversion of coordinates between the source and destination device color spaces and the device-independent color space, as required by Applicant's amended claims. Therefore, one of ordinary skill in the art would not have found any teaching in the Higgins et al. reference that would have suggested modification of the Swen et al. system to generate a color map based on the converted coordinates and user preferences specified by a user independently of the source and destination device profiles, wherein the user preferences include color conversion preferences.

With respect to claims 26 and 27, the Examiner asserted that it would have been obvious to modify Swen et al. to incorporate the use of psychovisual attributes as user preferences including illuminant functions or observer functions. However, the psychovisual attributes described by Higgins et al. are not user preferences. Rather, according to Higgins et al., psychovisual attributes of an image (such as brightness, sharpness, color, etc.) are automatically adjusted, without the need for human interaction, to generate psychovisually optimized image data. Indeed, Higgins et al. clearly states that the "[t]he psychovisual attributes are predetermined during psychovisual testing and are not adjustable by the user" (emphasis added). Col. 4, ll. 18-20. If such attributes are not adjustable by the user, clearly they do not form user preferences. Furthermore, Higgins et al. states that the motivation behind automatically adjusting

Application Number 09/536,366
Amendment Responsive to Office Action mailed February 23, 2005

the psychovisual attributes is to overcome problems of operator subjectivity and user interaction, which would seem to suggest that invocation of user preference is undesirable.

With respect to claim 28, the Examiner stated that Swen et al. discloses that the color transformer adjusts the source and destination device profile interpreters based on user preferences, citing Col. 11, lines 36-42. However, in the cited passage, Swen et al. refers to modification of a device profile via the user interface. Swen et al. describes modification of a device profile, rather than specifying user preferences independently of the profile, as required by Applicant's claim 25. Accordingly, this passage of Swen et al. provides no suggestion of this feature of the claimed invention. There is nothing about the modification of a device profile, per Swen et al., that could be considered "independent" of that profile. Rather, in Swen et al., the user modifications are directed at the profile.

Furthermore, Swen et al. provides no teaching pertinent to adjusting source and destination profile interpreters, as set forth in claim 28. In particular, Swen et al. describes modification of the profiles, but not interpreters that interpret the profiles. Upon appreciation of this fundamental difference, it should be clear that Swen et al. does not suggest the system of claim 28. Again, Swen et al. focuses on selection and modification of profiles themselves, rather than adjustment of components, such as profile interpreters, that make use of the profiles.

In addition, Higgins et al. also provides no teaching pertinent to adjusting source and destination profile interpreters based on user preferences. Higgins et al. discloses modification of a CSI (customer satisfaction index) that represents a tradeoff between image quality and image processing based on user selection information, but does not describe modification of interpreters or any other device that interprets the source and destination device profiles based on user preferences.

With respect to claim 32, the Examiner asserted that Swen et al. discloses that the color transformer generates the color map in part by reducing color error between converted coordinates from the source and destination device profile interpreters. In support of the rejection, the Examiner pointed to 'device profile modification' in Swen et al. and to 'adjustment process' in Higgins et al. However, it is not immediately clear to which aspects of the cited references the Examiner is referring. There appears to be no adjustment process described in

Application Number 09/536,366
Amendment Responsive to Office Action mailed February 23, 2005

Higgins et al. relative to source and destination device profile interpreters. Accordingly, Applicant respectfully requests clarification.

In general, neither Swen et al. nor Higgins et al. teaches generating a color map by reducing color error between converted coordinates. Any error discussed by Swen et al. relates to various error conditions (e.g., when a particular color matching method (CMM) is not available, or when insufficient memory is available) that have nothing to do with generating a color map in part by reducing color error between converted coordinates from source and destination device profile interpreters, as claimed. Furthermore, Higgins et al. describes determining image processing parameter data based on an iterative process that reduces an error between calculated and optimal CSI data that represents a tradeoff between image quality and image processing based on user selection information. Higgins et al. does not suggest reducing an error between converted color coordinates.

With respect to claim 33, the Examiner stated that the rejections to claims 25 and 32 are also applicable to claim 33. However, neither Swen et al. nor Higgins et al. teach or suggest generating a color map in part by reducing color error between converted coordinates from the source and destination device profile interpreters. As discussed above with respect to claim 32, Swen et al. relates to various error conditions that have nothing to do with generating a color map by reducing color error between converted coordinates from source and destination device profile interpreters. Furthermore, Higgins et al. describes determining image processing parameter data based on an iterative process that reduces an error between calculated and optimal CSI data and not between converted coordinates from the source and destination device profile interpreters, as claimed.

The Examiner also stated that using forward transformation profiles within source and destination device profile interpreters is shown in Applicant's Admitted Prior Art (AAPA), and that it would have been obvious to one skilled in the art to include forward transforms of AAPA into the system of Swen et al. in order to achieve accurate color reproduction.

Applicant traverses the alleged admission of prior art. The Examiner has misinterpreted both the description in Applicant's specification and the requirements of claim 33. In the Background, Applicant's specification described the use of forward and reverse transformation profiles to convert coordinates between source or destination device color spaces and a device-

Application Number 09/536,366

Amendment Responsive to Office Action mailed February 23, 2005

independent color space. Claim 33, on the contrary, requires that both the source device profile interpreter and the destination device profile interpreter use forward transformation profiles to produce converted coordinates. Upon proper interpretation, it should be clear that modification of Swen et al. to conform to the requirements of claim 33 would not have been obvious to one of ordinary skill in the art.

With respect to claims 47 and 51, Applicant refers to the remarks above with respect to claim 33, as applicable. In addition, claims 48-50 are dependent on claim 47 and claims 52-53 are dependent on claim 51.

With respect to claim 35, it is unclear what aspect of Swen et al. suggests that each of the source and destination device profiles defines a forward transformation. Applicant can find no mention of the use of forward profiles in the passages cited by the Examiner. Instead, Swen et al. simply refers to the contents of a profile and conversion between different color spaces.

With respect to claim 54, the Examiner stated that the rejections to claim 25 are also applicable to claim 54. However, neither Swen et al. nor Higgins et al. teach or suggest the adjustment of source and destination device profile interpreters based on user preferences that include color conversion preferences, wherein source and destination device profiles are not modified based on the user preferences. Higgins et al. provides no teaching pertinent to adjusting source and destination profile interpreters based on user preferences. Higgins et al. discloses modification of a CSI that represents a tradeoff between image quality and image processing based on user selection information, but does not describe modification of interpreters or any other device that interprets the source and destination device profiles based on user preferences.

With respect to claims 56 and 58, Applicant refers to the remarks above with respect to claim 54, as applicable. In addition, claim 55 is dependent on claim 54, claim 57 is dependent on claim 56 and claim 59 is dependent on claim 58.

Claim 30

The Examiner recognized that Swen et al. does not disclose that the source and destination device profile interpreters are configured based on white- and black-point parameters to account for color variations between media and colorants used by different color display devices, as recited by Applicant's claim 30. However, the Examiner asserted that Ohta describes

Application Number 09/536,366

Amendment Responsive to Office Action mailed February 23, 2005

such a limitation. However, the cited passages, Col. 4, ll. 9-15 and ll. 53-64, of Ohta describe source and destination device profile data that contains color coordinates of a white point. Ohta does not teach or suggest configuring source and destination device profile interpreters, or any other device that interprets the source and destination device profiles, based on white- and black-point parameters. In addition, claim 30 is dependent on claim 25, which is allowable over the prior art.

Claim 34

The Examiner recognized that Swen et al. does not disclose that the source or destination device profile contains raw spectral data that characterizes a source or destination device, as recited by Applicant's claim 34. However the Examiner asserted that Holm teaches such a limitation. Claim 34 is dependent on claim 25, and is allowable for the reasons discussed above. Furthermore, Holm provides no teaching sufficient to bridge the gap between the Swen et al. reference, as modified by the Higgins et al. reference, and the claimed invention, particularly in light of the deficiencies already noted above with respect to both Swen et al. and Higgins et al.

Application Number 09/536,366
Amendment Responsive to Office Action mailed February 23, 2005

CONCLUSION

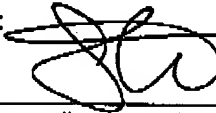
All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

Date:

5-23-05

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